UNITED STATES CIGARETTE EXPORT ASSOCIATION

Worldwide Decline in Smoking

March 16, 1992

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Worldwide Decline in Smoking

Anti-smoking activists have attempted to alarm the public by asserting that there is a "worldwide smoking epidemic", and particularly an "epidemic" of smoking in the Third World. This is an incorrect notion, both worldwide and with respect to the Third World. Nevertheless, it has been frequently repeated by career anti-smoking activists,[1] and its correctness was assumed by certain members of the United States House of Representatives in their 1990 request to the General Accounting Office to conduct an investigation of the international marketing practices of the United States tobacco companies.[2]

Per capita consumption of cigarettes has, in fact, been steadily declining on a worldwide basis over the last decade. The total production of cigarettes throughout the world[3] divided by world population[4] showed 1981 consumption of almost 1,200 cigarettes per person, falling below 1,100 five years later, and further reduced to less than 1,000 in 1990.

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[1] Dr. Judith M. McKay, a career anti-smoking activist, testified to a May 17, 1990 Congressional subcommittee: "The problem is that the bulk of that increase [in cigarette related deaths] will not lie in countries like the United States. They will lie in the Third World. . . And the Third World simply cannot afford this kind of epidemic." In October, 1988, her article, "The Tobacco Epidemic Spreads," was published in *World Health.*

The American Medical Association several years ago issued a report entitled: "Impact of United States Tobacco Exports on the Worldwide Smoking Epidemic."

[2] The October 23, 1990 letter from Representative Chester G. Atkins, joined by nineteen other members of the House of Representatives, said, in relevant part: "we believe your review will greatly assist the Congress in its deliberations of the various legislation (*sic*) addressing the control of the worldwide smoking epidemic."

[3] For purposes of this paper, cigarette production, import and export figures referred to are those reported by the United States Department of Agriculture, Foreign Agricultural Service, *World Tobacco Situation*. Data in this paper do not include either cigarette or population figures for the People's Republic of China, which are considered to be unreliable, are anomalous to general trends and which relate to a market where the international cigarette business is a trivial factor, representing a fraction of one percent.

[4] Data for the years 1980 through 1988 are drawn from the United Nations *Demographics Yearbook-1988*, and for the years 1989 and 1990 from the United Nations *World Population Prospects.*

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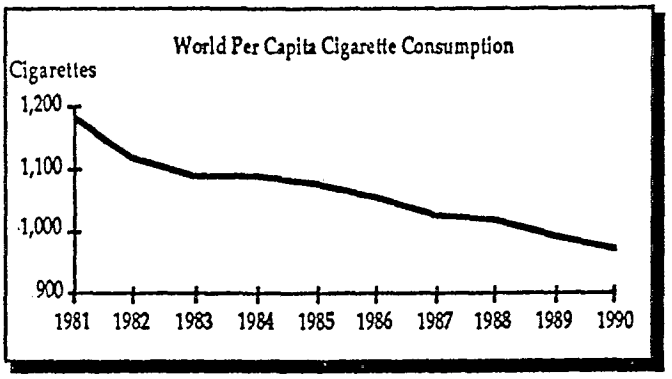

Figure 1

The steady reduction in the worldwide rate of cigarette consumption shown in Figure 1 exceeded twenty percent over the period. The term "epidemic" for such a phenomenon is not only inappropriate and misleading -- it is the opposite of the truth. "Epidemic" means an outbreak or product of sudden rapid spread, growth or development. It cannot be correctly, or even honestly, applied to a situation of persistently declining incidence.

The misconception that there exists a worldwide epidemic of smoking is propagated by career anti-smoking activists who have succeeded in inducing many people into believing that the mythical epidemic is particularly acute in the Third World. Yet the data reveal that there is not, and there has not been, an epidemic of smoking in the third world at all, much less a particularly acute epidemic. As shown in Figure 2, there has actually been a decline in the rate of cigarette smoking in the Third World of more than ten percent over the past decade.[5]

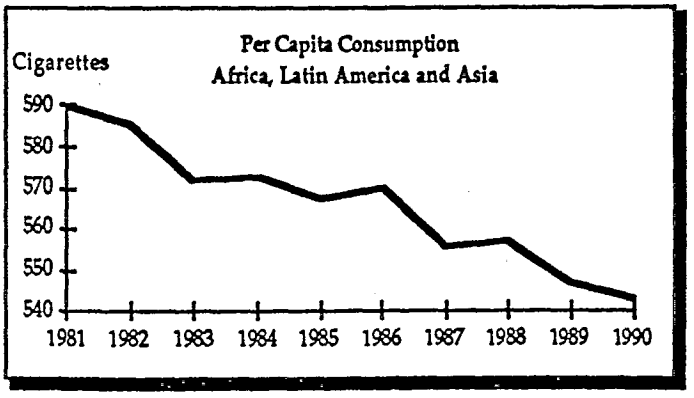

Figure 2

[5] These data are based on local production plus imports, less exports.

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Even in what had been the Soviet bloc, smoking has been characterized by a definite downward trend. Figure 3 shows that over the last decade per capita consumption of cigarettes has declined in every part of the world: in the industrialized countries of the OECD,[6] in Eastern Europe, in Africa, in Latin America, and in Asia.

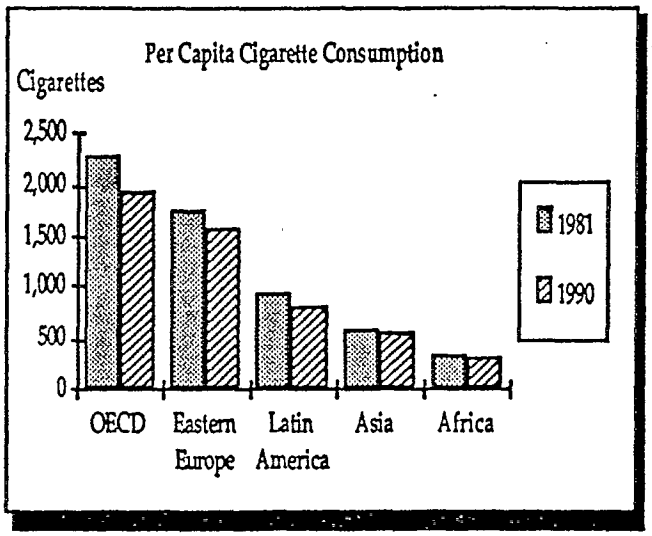

Figure 3

It has been suggested by anti-smokers that while smoking is declining in rich countries, the less educated and protected people in poor countries are taking up the practice more and more.[7] When looked at in relative terms, the data reveal that although the decline in

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6 The Organization for Economic Cooperation and Development's membership is: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom and the United States.

7 "The data indicates . . . that smoking rates are declining in the Western world at the rate of two percent a year, but rising in the developing world at the rate of two percent. . . . American men who wear ties are quitting and what are we trading these people who wear ties for, but these people here?" Gregory Connolly, DMD, career anti-smoking activist.

"The U.S. tobacco industry, frustrated by America's increasing concern about the known serious dangers of smoking and the declining percentage of Americans who do smoke, have turned their attention to creating new markets in Asia and Africa." U.S. Representative Robert Whittaker.

"For every smoker who quits in Boston or Baltimore, new smokers are being targeted and aggressively recruited by U.S. tobacco companies in Bangkok and Beijing." U.S. Representative Henry Waxman.

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per capita cigarette consumption has been greater in the OECD (the twenty-four most industrialized countries) than in the rest of the world, it was starting from a considerably higher base in the OECD. Indeed, over the last decade while per capita cigarette consumption declined 16% in the OECD it fell, on average, 10% in the rest of the world where the base was already considerably lower.

It is significant that these fall-offs in cigarette consumption have taken place against a strong contrary trend of consumption patterns for other consumer, packaged, non-essential items. As can be seen in Figure 4, there has been a pattern of rapid growth among soft drinks[8] in each region of the world, while the consumption pattern for cigarettes has been clearly negative.

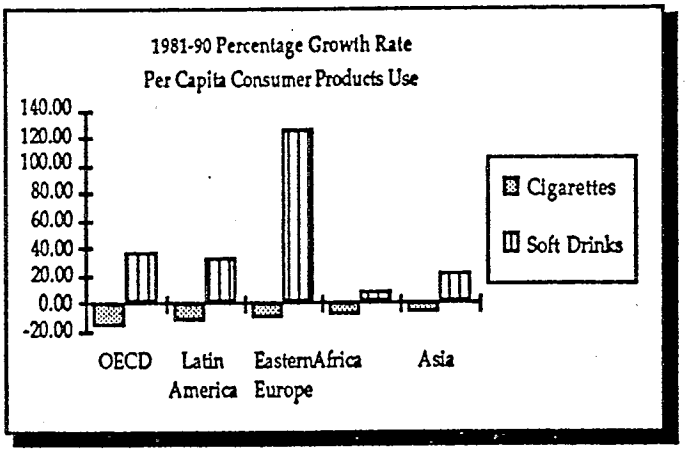

Figure 4

Finally, although an epidemic should be considered relative to the size of the population concerned, it is noteworthy that not only on a per capita scale, but even on an absolute scale, there are fewer cigarettes manufactured today than there were a decade ago. Indeed, over the ten year period the world production of cigarettes has been, on average, more than a billion fewer each year.[9] Consequently, by no definition can it properly be said that there is a "worldwide epidemic of smoking." Instead, there is a worldwide decline in smoking.

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[8] Source: Beverage Marketing Corporation.

[9] USDA, FAS, *World Tobacco Situation* reports for the period. See also, United States International Trade Commission, Office of Industries, Publication 2462 (AG-2), November 1991, *Industry & Trade Summary, Cigarettes*, p.4 ,"world production of cigarettes, excluding China's, has been stable." Growth of consumption in the isolated People's Republic of China cannot fairly be parlayed into a worldwide phenomenon which it is not.

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SMOKING AMONG NORWEGIAN DOCTORS 1952-84

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A 1984 survey on Norwegian doctors was used to update earlier conclusions from similar surveys in 1952[1] and 1974[2]. The 1984 survey included for the first time questions regarding doctors' intervention with patients. 91% of a stratified sample of members of the Norwegian Medical Assosiation responded to the mailed questionnaire, 435 female and 969 male physicians. As smoking varies systematically by age, the general population was ageadjusted to match the doctors' age distribution. The figures given for the general population in this paper may therefore differ from official Norwegian figures.

RESULTS:

Smoking Habits:

In 1984, 18.6% of male doctors were smokers, whereas in the Norwegian population at large 46% were smokers. Only 11.4% of female doctors smoked compared to 41% of all Norwegian women. There seems to be a widening gap between the doctors and the lay population, because the differences are more marked in the younger age groups, and because more doctors than lay persons want to quit smoking.

In comparison both to 1952 and to 1974 there was in 1984 a further considerable decrease in the proportion of doctors who smoke, both within and across age cohorts. (not the same persons), with the exception of persons 65 years of age and older. The decrease in smoking among males is much steeper among doctors than in the Norwegian male population. Smoking proportions are increasing in the female population, and reducing sharply among female physicians. (Fig. 1)

Cessation:

25% of male and 15% of female doctors are now ex-smokers, from this it may be inferred that 2.400 Norwegian doctors have quit smoking. The doctors who continue smoking have not cut down on their tobacco use. The mean consumption per smoker was 14 cigarettes per day for male doctors and 12 cigarettes per day for female doctors. This difference is almost identical to the doctors' consumption in 1974 and to the consumption of the general population in 1984.

Do doctors intend to quit?

When asked to predict their smoking habits in 5 years, only 11% of male doctors and 4% of female doctors who smoke were certain that they would smoke in 1989, whereas 40% of the men and 54% of the women think it likely or certain that they will quit smoking. If their own predictions were true, the overall rates of smoking in 1989 would be 11% for male doctors and 5% for female doctors.

Smoking Intervention:

A new feature of the 1984 survey was the inclusion of questions on doctors'

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activity in advising patients about the health effects of smoking and to recommend changes in patients' smoking habits. 48% of male and 42% of female doctors who had opportunities to discuss smoking with patients, say that they question all patients on smoking. Scores on a smoking intervention index reflect physicians' own smoking behavior: Non-smoking doctors score higher than smoking, never-smokers score higher than ex-smokers, younger doctors higher than older, and GPs higher than hospital doctors.

Multiple regression showed that for males, being a GP was the most important factor in predicting high intervention activity, followed by young age, low tobacco consumption and being a company doctor. The same four factors were most important for female doctors. However, there were only 14 female company doctors. Specialists, hospital doctors and graduates from non-Norwegian medical schools had negative regression coefficients, showing relatively lower activity.

Turning to the individual items that made up the smoking intervention index, no differences are seen between smokers and non-smokers regarding advice to patients with smoking related symptoms, or to women who were pregnant or on oral contraceptives. Non-smoking physicians were, however, more likely to discuss smoking with all smoking patients. They were also more interested in helping patients quit smoking.(Fig.1)

DISCUSSION:

It is of great importance to have high response rates when inferring smoking habits, and when comparing 1984 figures with earlier surveys that were conducted when pressure to stop smoking was less. 30% of late responders were smokers compared to only 17% of early responders.

If the present trend of reducing smoking proportions by 1.7% per year for male and by 1.0% per year for female doctors continues, Norwegian doctors will be smoke-free by 1996. Although the non-smoking goal is unlikely to be met for the general population, it is encouraging to see that doctors at least are reducing their smoking at such a rapid rate. (Fig.1.)

Measured by the smoking intervention index, younger doctors show more interest in smoking and health. This may reflect that the education of medical students now emphasizes preventive measures generally, and towards smoking in particular. It is very unfortunate that older doctors and specialists tend to be less interested in their patients' smoking, as they are often sought for second opinions. If consultants do not inquire about smoking, patients may use this as an excuse to ignore the advice of the referring GP.

CONCLUSIONS:

1. A considerable decrease in the proportion of smoking doctors occurred during the period from 1952 to 1984, from 74.6% to 18.6% for men, and from 44.5% to 11.4% for women. The decrease in smoking is partly due to smoking cessation and

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partly due to fewer smokers among younger doctors.

2. Smoking and non-smoking doctors alike give information on smoking and health to patients who report smoking related symptoms. However, general smoking and health information as well as assistance in breaking the habit, are more frequently given by non-smoking doctors. Young, non-smoking GPs are the most active in this regard.

Figure 1. PERCENT SMOKERS AMONG NORWEGIAN DOCTORS IN 1952-1984 AND IN THE GENERAL POPULATION 1956-1984, AGE ADJUSTED
Thurmer & Bjartveit

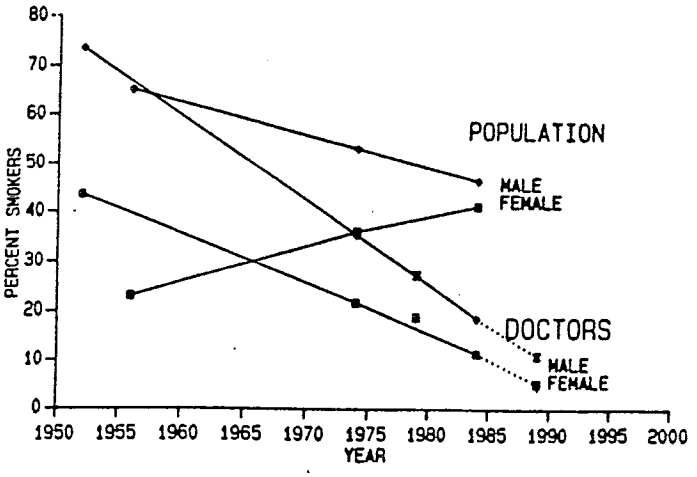

Table 1. % DOCTORS DISCUSSING SMOKING BY PATIENT SITUATION, N=582, MALES. COMPARING GPs TO HOSPITAL DOCTORS, OR SMOKERS TO NON-SMOKERS

PATIENT SITUATION:	GPs	Hospital doctors	Daily smokers	Non-smokers
Smoking related symptom	100	99	100	99
Pregnant	98***	77	84	87
On oral contraceptives	93***	63	72	77
Daily smoker	65*	51	33	61***
All patients	36	55*	39	52**
DOCTORS WHO WOULD:				
Motivate smokers to quit	84**	69	56	79***
Host cessation groups	17**	13	7	16***

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Ref.1. Kreyberg HJA. A study of tobacco smoking in Norway. Br J Cancer 1954;8:13

2. Aarø LE. et al. Smokinbg habits among Norwegian doctors 1974. Scand J Soc Med 1977;5:127-35.

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ACTION PLAN "SMOKEFREE NORWAY YEAR 2000"

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ABSTRACT

An action plan "Smokefree Norway Year 2000" was prepared by the Norwegian Association against Tobacco, the Norwegian Asthma and Allergy Association, the Norwegian Cancer Society, the Norwegian Confederation of Sport, the Norwegian Coordinating Boards of Health Education, the Norwegian Medical Association, and the Norwegian National Health Association. The action plan was presented to the Minister of Health and Social Affairs in January 1989.

The action plan discusses the use of tobacco in Norway and related health effects. Concrete targets and time limits for different actions are suggested. The importance for the Government to have an active policy against tobacco is stressed. Actions such as the increase of tobacco prices, the reduction in the availability of tobacco, and the creation of more smoke-free areas are necessary. The largest resources should be used to prevent adolescents from starting to smoke. A work group with representatives from the Department of Health and Social Affairs, the Directorate of Health, the National Council on Smoking and Health and from the organizations that have signed the action plan has been appointed. The work group is an advisory group and a forum for coordination of the campaign against tobacco. The work group will in addition have the responsibility of evaluating the progress of the action plan.

THE NEED FOR AN ACTION PLAN AGAINST TOBACCO

The Norwegian Parliament was one of the first parliaments to discuss a program against smoking. In 1969, the Norwegian Parliament announced a national program against smoking. Tobacco advertising was banned in 1974. Subsequently, health warnings have been introduced on cigarette packets, packets of smoking tobacco and packets of cigarette paper. The Norwegian Medical Association's board took a resolution to the Government to work for "Smokefree Norway by the year 2000". The two last Governments have both agreed on this goal. In 1988 we got an act protecting people against passive smoking.

Although Norway, in many respects, has been a pioneer in the campaign against tobacco, the prevalence of smoking in Norway has changed very little during the last eight years. Thus, it is apparent from fig. 1 that the prevalence of daily smoking among men was reduced from 52% in 1973-74 to 40% in 1981. This percentage has remained nearly constant since then. Among women the prevalence rate of regular smoking has been constant, about 32-33% since 1973.

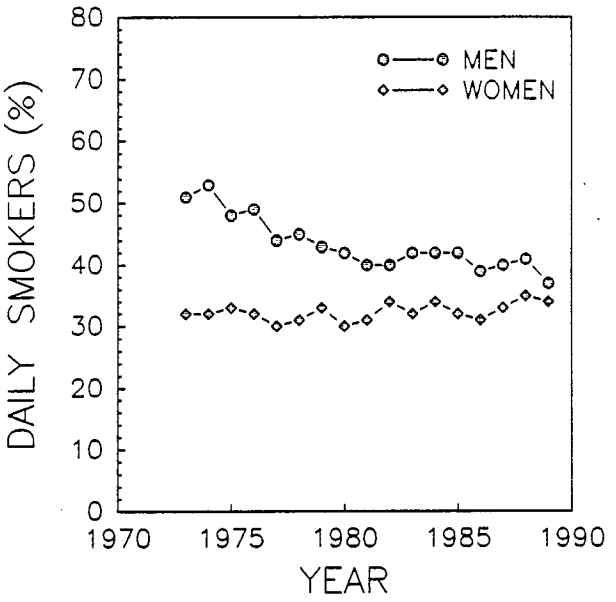

Fig 1. Prevalence of daily smoking in Norway in the age group 16 - 74 years.

The absence of changes in the prevalence of regular smoking in the Norwegian population, gives the impression that only small changes in smoking habits have occurred during the last years. This is, however, not the case. If we consider different groups of the population, considerable changes have occurred. In 1952 about 75% of male medical doctors smoked, while in 1984 the prevalence rate had been reduced to 19%. Moreover, an inverse correlation between smoking and educational status is clearly shown in a recent study from the Norwegian Council on Tobacco and Health (Fig 2). The study shows that in the period 1987-89, the prevalence of male regular smokers in the age group 20-30 years was nearly 4 times higher among those with only basic education than among college and university graduates. Those with high school and some college education fell half way in between. Among women in the age group 20-30 years, the pattern was similar, although the prevalence rate of smoking was higher among college and university graduates.

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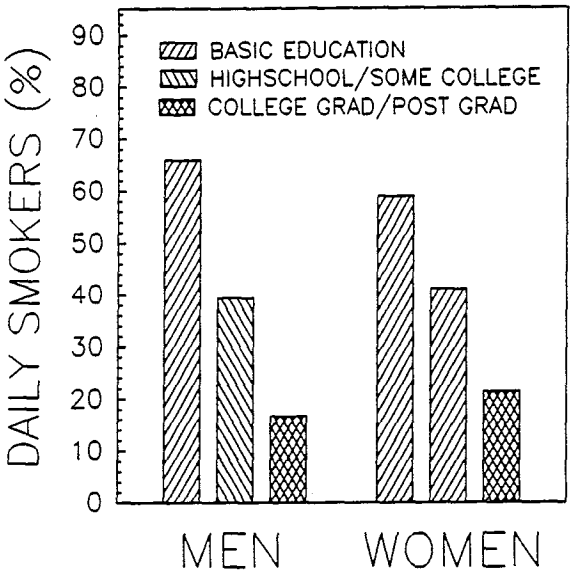

Fig 2. Prevalence of daily smoking in the age group 20 - 30 years in the period 1987 to 89 in groups with different education.

During the period when the prevalence of regular smoking was constant in Norway, the prevalence of regular smoking in the USA was reduced by between 1/3 and 1/4. In Finland, Sweden and the USA, the prevalence of regular smoking is considerably lower than in Norway. During the last years Norway has been lagging behind in reducing the use of tobacco. This was one of the reasons for the Norwegian Cancer Society, the Norwegian Association against Tobacco, the Norwegian National Health Association, the Norwegian Asthma and Allergy Association and the Norwegian Coordinating Board on Health Education to prepare, in 1986, an action plan for "Smokefree Norway Year 2000." A new action plan was prepared on the basis of activities to reduce the use of tobacco in Europe during the last years. The present action plan is based on recommendations from the World Health Organization, Regional Office for Europe "A 5 Year Action Plan, Smoke Free Europe" and recommendations from the First European Conference on Tobacco Policy (organized by WHO in Madrid 7-11.11.88). Moreover, recommendations from The Sixth World Congress on Tobacco and Health and the action plans against cancer by the European Community and the Nordic Council, have been taken into consideration. In addition to the organization which prepared the first action plan, the Norwegian Medical Association and the Norwegian Confederation of Sport have participated in the new action plan which was presented to the Secretary of Social Affairs in January 1989.

THE STRATEGY OF THE ACTION PLAN

In the new action plan, concrete aims and time limits are set. Some of the reforms may seem unrealistic and provocative. It is then important to remember that many reforms which are commonly accepted today, seemed unrealistic just a few years ago. Moreover, the attitudes towards tobacco and the use of tobacco has changed considerably during the last few years. The important goal of a "Smokefree Norway Year 2000" has great support among the Norwegian people today.

Knowledge by all smokers of the health risks of tobacco is not sufficient to reach the goal "Smokefree Norway Year 2000". The Government must have a policy which makes it easier for the individual to decide not to use tobacco. This can be achieved by pressure on social, cultural and economic factors, so that individuals and groups that use tobacco proceed to quit, and new groups do not start to use tobacco. The increasing number of Norwegians who travel abroad and the flow of information between countries, make a united European campaign against tobacco very important.

The following sectors must be involved in the Action Plan for Smokefree Norway Year 2000:

Health authorities and other authorities as well as health personnel.

Parliament and politicians, both local and national.

Education establishment from nursery to university and adult education.

Business and industry.

Humanitarian organizations, interest groups, trade unions and sports- and youth- organizations.

Mass media (TV, radio, video, cinema, theatre).

The Department of Social Affairs has the responsibility for realization of the action plan against tobacco. The National Council on Tobacco and Health has a key part in this work. It was also suggested in the plan that a work group should be formed with representatives from the Department of Social Affairs, the Directorate of Health, the National Council on Tobacco and Health and the organizations which have signed the action plan. This work group was appointed by the Department of Social Affairs in April 1989, and is an advisory group and a forum for coordination. The work group is in addition responsible for evaluating the advancement of the action plan.

The Action Plan for Smokefree Norway Year 2000 is summarized in Table I. The greatest resources should go towards preventing adolescents from starting to smoke. The reason for the focus on adolescents is based upon studies done by The National Council on Tobacco and Health. The studies have shown that 75% of the smokers in Norway today started before they were 20 years old.

Changes in attitudes towards tobacco are critical. It is important to stress both the positive aspects of giving up smoking and the damage to health caused by tobacco. Work to change attitudes among adolescents is especially important in preventing young people from starting to smoke, and this is given the highest priority. Parallel to the provision of information, it is important to start smoke cessation groups among people who are trend-setters for adolescents.

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Health personnel, teachers in the wider sense as well as sport and youth leaders have a considerable responsibility as trend-setters. It is important that these groups get special information and help with smoking cessation.

Sales of cigarettes from vending machines should be stopped. The legal age for buying tobacco should be increased from 16 to 18 years. In more than half of the states in the USA, the legal age for buying tobacco is 18 years or higher.

Since children are especially vulnerable to the health damaging effects of tobacco smoke, pregnant women and parents of young children are priority groups for information and help with smoking cessation.

A subgroup of the work group for "Smokefree Norway Year 2000" in charge of preparing a separate action plan for a smoke-free health institution, has recently been appointed by the Department of Social Affairs. This subgroup has

Table 1: SUMMARY OF THE ACTION PLAN "SMOKE FREE NORWAY YEAR 2000"

Project	1990	1992	1995
PROJECTS THAT WILL CONTINUE UNTIL THE YEAR 2000			
Information to change attitudes towards tobacco. Information to adolescents will have the highest priority.			
Smoke cessation projects: Smoke cessation groups among employees in the health and education sectors and among sports and youth leaders will have the highest priority. Companies will be encouraged to help employees to give up smoking.			
PROJECTS WITH TIME LIMITS			
NATIONAL PROJECTS			
Protection of non-smokers	Smokefree health institutions	Totally smoke-free educational institutions 1/3 smokefree hotels and restaurants	Totally smokefree health institutions 1/2 smokefree hotels and restaurants. Smokefree youth centres. All public and official places completely smokefree
Protection of children	Regulations for indoor air quality		
Reduced availability	Vending machine sales stopped		Legal age for buying tobacco 18 years. Licensing of sale of tobacco.
New tobacco products	Ban of sale		
Price rise	Tobacco excluded from cost-of-living index (more than 20% increase in price every year)	Duty free import stopped	
Restriction on snuff and chewing tobacco	Health warnings		Ban on sale
INTERNATIONAL PROJECTS			
Smokefree flights	Between the Nordic countries	Europe	The world
Duty free sales stopped		Nordic countries	Europe
PARTIAL AIMS. 80% non-smokers and 50% reduction in sales by 1995.			

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representatives from all of the different groups employed in health institutions as well as from the owners and from patients. The subgroup will have an action plan for smokefree health institutions ready within one year. The action plan for smokefree health institution will thus have support from the unions organizing the employers of hospitals and other health institutions. The National Institute for Public Health in Norway was completely smokefree from 1 April 1990.

A second subgroup will probably be appointed before the summer of 1990. This subgroup will prepare a separate action plan for smokefree schools. The subgroup will have representatives from the different organizations for teachers as well as other groups working in schools, and from the students.

The goal of "Smokefree Norway Year 2000" may seem unrealistic to many as there is only ten years left. However, we have all seen during the last few months that changes have occurred in Europe that nobody would have believed were possible only a year ago. In the fight against tobacco it is necessary to be optimistic and to set ambitious goals.

This communication is based on:

Koefoed N, Nordahl V, Grimsrud TK, Sanner T (editor), Stenmarck S, Heimdal A, Svennevik E. Action plan. Smokefree Norway year 2000. Pp 23 (In Norwegian, translated to English by S. Everington and T. Sanner, 1990), Oslo 1989.

The use of tobacco is the largest single avoidable cause of ill health and premature death. About 6,000 people die every year in Norway from tobacco related diseases. The use of tobacco is responsible for about 45% of all deaths among men in the age group 35-54 years.

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GENDER DIFFERENCES IN TOBACCO USE IN AFRICA, ASIA, THE PACIFIC, AND LATIN AMERICA

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Abstract—This paper reviews historical, anthropological and contemporary survey data concerning gender differences in tobacco use in Africa, Asia, the Pacific, and Latin America. In many cultural groups in these regions, tobacco use has been substantially more common among men than among women. In some groups, tobacco use has been about equally common for both sexes. No evidence was found of any group in which tobacco use has been substantially more common among women.

The widespread pattern of greater tobacco use by men appears to be linked to general features of sex roles. For example, men have often had greater social power than women, and this has been expressed in greater restrictions on women's behavior, including social prohibitions against women's smoking. These social prohibitions against women's smoking have strongly inhibited women's tobacco use and thus have been a major cause of gender differences in tobacco use.

Gender differences in tobacco use have varied in magnitude, depending on the type of tobacco use and the particular cultural group, age group and historical period considered. Causes of the variation in gender differences in tobacco use include variation in women's status and variation in the social significance and benefits attributed to particular types of tobacco use in different cultures. Contact with Western cultures appears to have increased or decreased gender differences in smoking, depending on the specific circumstances.

The patterns of gender differences in tobacco use in non-Western societies are similar in many ways to the patterns observed in Western societies, but there are several important differences. For example, current evidence indicates that in many non-Western societies women have been more likely than men to quit smoking, in contrast to most Western societies where men have been as likely or more likely than women to quit smoking.

Key words—smoking, tobacco use, gender, sex differences, cross-cultural

INTRODUCTION

This paper reviews historical, anthropological and contemporary survey data concerning the patterns and causes of gender differences in tobacco use in Africa, Asia, the Pacific, and Latin America. Early anthropological evidence for native Americans in North America is also reviewed. Evidence concerning gender differences in smoking in Western societies is reviewed in another paper [1].

The topic of gender differences in tobacco use is of interest in part because men's higher rates of cigarette smoking have been a major cause of men's higher mortality in Western countries [2, 3]. In addition, the observed patterns of gender differences in tobacco use raise interesting questions concerning the causes of gender differences in behavior. For many different cultures and historical periods there is evidence that more men than women have used tobacco, and no evidence has been found for a reverse case, in which substantially more women than men have used tobacco. What causes can account for this widespread male excess in tobacco use? Additional questions are raised by the cross-cultural and historical variation in the magnitude of gender differences in tobacco use. The observed gender differences range from almost exclusively male use of tobacco in some groups to approximately equal rates of tobacco use for men and women in other groups. What causes are responsible for this variation in the magnitude of gender differences in tobacco use? This paper first summarizes the patterns of gender differences in tobacco use in non-Western societies and then reviews evidence concerning possible causes of these patterns.

HISTORICAL AND ANTHROPOLOGICAL EVIDENCE

Native Americans

Anthropological evidence for several native American groups in North America suggests that, in the late nineteenth and early twentieth centuries, tobacco was used primarily in ritual contexts and ritual use of tobacco was in most cases restricted to men [4, 5]. By the second quarter of the twentieth century, nonritual use of tobacco had become common and women as well as men engaged in nonritual use of tobacco.

For quite a few Central and South American groups studied in the twentieth century, the use of tobacco appears to have been exclusively or primarily nonritual. Gender differences in nonritual use of tobacco varied from use by men only to extensive use by both women and men [5–7]. No evidence was found of a group in which women used tobacco more than men.

Asia

Historical evidence indicates that tobacco use was introduced in much of Asia early in the seventeenth century. In this early period in Korea and Japan, tobacco use was widespread among both women and

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men [8, 9]. Even as recently as the late nineteenth century, most Korean women and men smoked pipes [10]. However, by the mid-twentieth century in Korea and Japan, smoking was restricted primarily to men [9, 11, 12]. Thus, in these countries, there has been an historical transition from tobacco use by both women and men to tobacco use primarily by men.

Anthropological studies of Asian groups in the mid-twentieth century indicate a variety of patterns of gender differences in tobacco use, including some groups in which tobacco use has been rare among women and other groups in which tobacco use has been almost universal among both women and men [9, 13, 14]. No group was identified in which women used tobacco more than men.

Africa

Gender differences in tobacco use in Africa have varied for different cultural groups, different historical periods and different types of tobacco use. In some groups tobacco use has been much more common among men than among women, while in other groups tobacco use appears to have been equally extensive among women and men or absent among both women and men [15–19]. In a number of cases, closely neighboring groups have shown very different patterns of gender differences in tobacco use. Gender differences have also varied for different types of tobacco use. For example, evidence for the Masai and Samburu in Kenya indicates that women are as likely as men to use smokeless tobacco, but only men smoke cigarettes [16]. In a few African groups, a specific type of tobacco use was more common among women than among men. However, in each case, when all types of tobacco use are considered together, it appears that men were as likely as women to use tobacco [15].

Limited data suggest that in some groups the patterns of gender differences or lack of gender differences in tobacco use have been relatively stable historically [15, 17, 19]. In other cases gender differences in tobacco use have varied historically, for example, when cigarette smoking has been introduced and has been adopted by men only [16].

CONTEMPORARY SURVEYS

This section reviews findings from surveys in Africa, Asia, the Pacific, and Latin America from 1960 through 1985. In almost every group studied, smoking has been more common among men than among women (Figs 1 and 2) [20–26]. The magnitude of gender differences in the prevalence of smoking has varied considerably for different countries and for different regions or cultural subgroups within a country. In a few groups, there has been little or no gender difference in the prevalence of smoking. No group was found in which smoking was substantially more common among women than among men.

Smokeless tobacco use appears to have been much less common than smoking. In several groups that did use smokeless tobacco, there was little gender difference in smokeless tobacco use, even though men were more likely than women to be smokers [23, 27]. In contrast, for another group, more men than

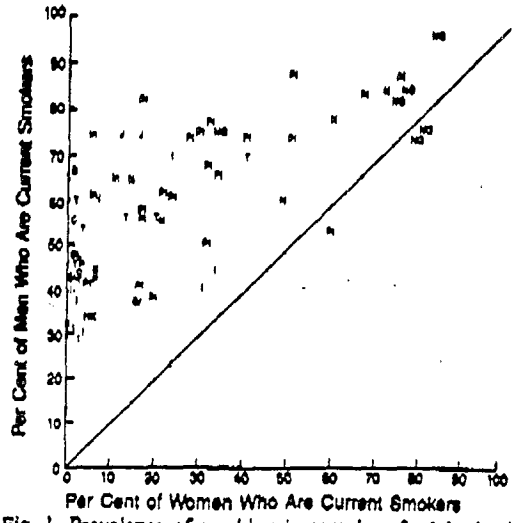

Fig. 1. Prevalence of smoking in samples of adults in the general population in different regions in Asia and the Pacific, 1960–1985. Letters designate country of sample: B—Bangladesh, Br—Brunei, C—China, HK—Hong Kong, I—India, In—Indonesia, J—Japan, M—Malaysia, N—Nepal, NG—New Guinea, PI—Pacific Islands, P—Pakistan, S—Singapore, SL—Sri Lanka, T—Thailand. Data from Refs [27–33, 35–37, 41–44, 53–60].

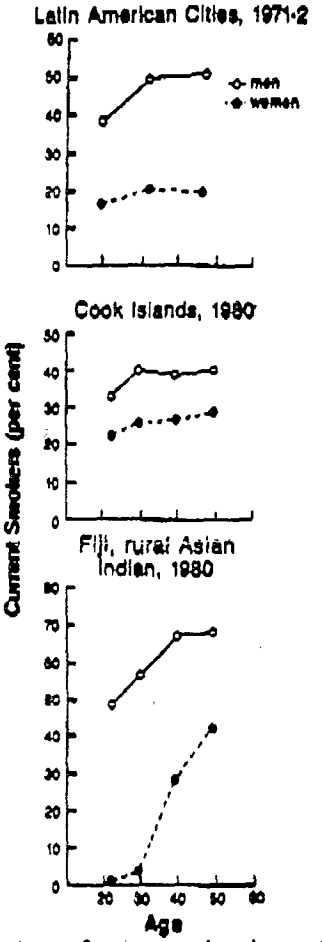

Fig. 2. Prevalence of current smokers by age for men and women in selected non-Western samples. Data from Refs [34, 36].

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women used smokeless tobacco, but men and women were equally likely to be smokers [27].

Gender differences in tobacco use have also varied for different types of smoking. In several countries where more men than women have been smokers, the male excess has been larger for use of manufactured cigarettes and imported tobacco and smaller or absent for use of indigenous products made from locally grown tobacco [28–31]. Regional variation in New Guinea shows a corresponding pattern [32, 33]. In highland regions where home-grown tobacco was generally used, smoking has been as common among women as among men. In contrast, in a coastal region where manufactured cigarettes were generally used, smoking was much less common among women than among men (although by 1981 this gender difference had decreased substantially).

Gender differences in smoking have also varied by age in many groups, although the pattern of variation by age has been different in different groups (Fig. 2) [21, 26, 28–30, 34–36]. In many groups gender differences in smoking have been smaller for older adults, probably because women have adopted smoking at older ages than men. Surveys in Singapore and Latin American cities have shown that, on the average, women smokers began smoking at older ages than men smokers [34, 37]. Studies of children and teenagers have found that boys have been more likely to experiment with cigarette smoking and, in most groups, among those who had experimented with smoking, boys have been more likely to become regular smokers (calculated from data in Refs [38–40]).

With regard to gender differences in the amount smoked per smoker, in most groups men have smoked more per day, although in a few cases no substantial gender difference has been observed [20, 21, 23, 29, 34–36, 41, 42]. Limited evidence also indicates that, among smokers, men have been more likely to inhale and less likely to use filter cigarettes [28, 34].

In order to evaluate gender differences in smoking cessation, I have calculated cessation ratios, that is, the proportion of former smokers among those who have ever smoked. Cessation ratios have been higher for women than for men in many groups, particularly in the Pacific Islands, and cessation ratios have been higher for men in only a few groups (Fig. 3; calculated from data in Refs [20, 26, 29, 36, 43, 44]).

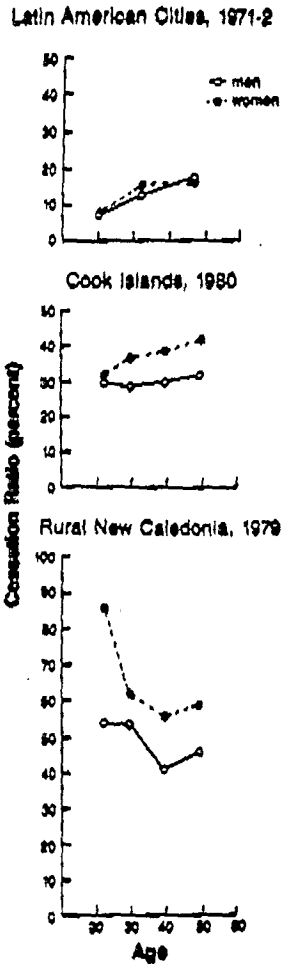

Fig. 3. Cessation ratios by age for men and women in selected samples. Data from Refs [34, 36].

CAUSES OF GENDER DIFFERENCES IN TOBACCO USE

The evidence presented indicates that, in most of the African, Asian, Pacific and Latin American groups studied, more men than women have used tobacco. In some cases tobacco use has been about equally common among men and women. None of the anthropological, historical or contemporary survey data has identified a group in which tobacco use has been substantially more common among women than among men.

Why do more men than women use tobacco in so many different societies, and why are there apparently no societies in which substantially more women than men use tobacco? When a gender difference is as consistent and widespread as the male excess in tobacco use, this is often taken to suggest biological causation. One hypothesis has been that there may be biological sex differences in nicotine metabolism that make females more likely to feel sick after first using tobacco, particularly if only high nicotine tobacco products are available [45]. If females are more likely to feel sick, they may be less likely to adopt tobacco use habits. However, evidence concerning this hypothesis has been highly inconsistent, and data from the United States suggest that any inherent sex differences in responses to nicotine have made at most a minor contribution to gender differences in tobacco use [1]. Also, data from New Guinea suggest that high nicotine tobacco is not necessarily a deterrent to high rates of smoking among women. In several regions of New Guinea, the native tobacco had a very high nicotine content, but, nevertheless, almost all women smoked [28, 32, 33]. Thus, the available evidence indicates that the widespread pattern of greater tobacco use by men is not due to inherent sex differences in nicotine metabolism.

A second hypothesized link between biological sex differences and gender differences in tobacco use is indirect and speculative. This hypothesis proposes that, because women bear and nurse children, and

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probably also because men tend to be larger and stronger, there has been a widespread cultural evolution of certain general patterns of women's and men's roles. For example, women have been largely responsible for the care of young children, and in many societies men have had greater power, status and privilege [46, 47]. It appears that there have been important links between the general features of sex roles and the widespread pattern of greater tobacco use by men.

Probably the most important feature of sex roles that has contributed to gender differences in tobacco use has been men's greater power and access to scarce resources in many societies. The following paragraphs present evidence that gender differences in power are reflected in greater restrictions on women's behavior, including widespread social proscriptions against women's smoking, and this social disapproval of women's smoking has been a major cause of gender differences in smoking.

Social disapproval of women's smoking has been reported from regions as diverse as Japan, Taiwan, India, Sri Lanka, Ethiopia and Kenya [13, 16, 31, 48–50]. Interview data from several different ethnic groups in contemporary Kenya indicate that restrictions on women's smoking are linked to women's lower status and power [16]. Respondents in most of these ethnic groups stated that smoking was proscribed for women, but men's behavior could not be restricted in this way; men were permitted to smoke because they were the 'boss'. In this study the Luo were the only group which espoused equality of women and men in decision-making, and the Luo were also the only group among whom women's smoking was considered socially acceptable and as many women as men smoked.

Additional evidence suggests that social disapproval of women's smoking has been linked to more general restrictions on women's behavior, particularly restrictions on women's sexual behavior. Smoking by women has been considered indicative of loose sexual morals in non-Western countries, as it was in Western countries in the early twentieth century [1]. In Japan around 1950, smoking by women was considered to be a habit of professionally promiscuous women such as prostitutes and geisha [50]. Similar opinions have been reported from parts of Africa [16] (Patrick Ohadike, personal communication, 1982). Since cigarettes are associated with Western influence, cigarette smoking may be thought to be more closely linked to lax morals than the use of native tobacco products. This could account for the observation that in some groups cigarette smoking is proscribed for women, but the use of smokeless tobacco by women is socially accepted and common [16]. Similar attitudes may contribute to the greater male excess for use of manufactured cigarettes and imported tobacco and smaller male excess for use of native tobacco in several regions in Asia and the Pacific [28–31].

In many groups, restrictions on women's behavior are generally stronger for young women, while older women have relatively more status and more freedom in their behavior. Correspondingly, it appears that in quite a few groups the proscription against smoking has been more rigid for younger women, and smoking has been more accepted and more common among older women [11, 13, 29, 51, 52].

Survey data for Latin American cities support the conclusion that social attitudes toward women's and men's tobacco use have been a major cause of gender differences in tobacco use (Table 1). More men than women were smokers (47 vs 18%), and the survey data indicate that the primary reasons for this gender

Table 1. Reasons for smoking or not smoking cigarettes, Latin American cities, 1971–2

	Percent who reported this reason		
	Men	Women	Sex difference
Reasons for starting to smoke regularly, for adults who had ever smoked regularly			
Sense of increased masculinity	23.2	0.0	23.2
Imitation of peer group	79.4	65.8	13.6
Sense of greater personal attractiveness	13.0	11.3	1.7
Desire to keep weight down	2.3	7.1	−4.8
Smoking by close relatives	19.7	28.0	−8.3
N	3123	1421	
Reasons for never having smoked, for adults who had never smoked regularly			
Feared loss of athletic capacity	14.4	5.4	9.0
Health	20.9	15.6	5.3
Feared loss of work capacity	12.0	8.5	3.5
Expense	8.4	7.6	0.8
Family influence	17.9	19.6	−1.7
Dislike of smoking	74.3	80.1	−5.8
Believed it unfeminine	0.0	30.1	−30.1
N	2485	5353	
Reasons for giving up cigarettes, for former smokers			
Felt sick when smoking	62.5	49.4	13.1
Reduced capacity for work, sports, etc.	32.2	19.1	13.1
Expense	11.2	10.4	0.8
Medical advice	27.3	27.0	0.3
Family influence	12.0	15.1	−3.1
N	497	201	

Data from Ref. [34].

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difference were that many women did not become smokers because they believed smoking to be 'unfeminine' and many men began smoking because smoking increased their sense of 'masculinity'.

Another aspect of traditional sex roles that has contributed to gender differences in tobacco use is men's greater access to scarce material resources. In some groups tobacco has been considered a scarce luxury that has been reserved exclusively or primarily for men, and in some groups men's greater use of tobacco has been explicitly linked to their role as earners [13, 16, 18]. In many contemporary groups, men have more money to spend on discretionary items, and this may be an additional reason why gender differences tend to be larger for cigarette smoking and smaller for the use of traditional products made from native tobacco.

Other aspects of sex roles appear to have contributed to gender differences in tobacco use. In a number of native American groups in the late nineteenth and early twentieth centuries, men's greater use of tobacco was directly linked to men's roles in rituals that involved tobacco use [4, 5]. In some groups, it is believed that a mother's smoking may harm her children and this inhibits women from smoking [16].

It has also been hypothesized that women are more concerned with health than men, and women's concerns about the health risks of tobacco use have contributed to women's lower rates of tobacco use. However, a survey in Latin American cities found that women were *less* likely than men to mention the health-damaging effects of smoking as a reason not to smoke (Table 1). Similarly, data from Kenya suggest that women were no more likely than men to mention health risks as a reason not to smoke [16]. Thus, in these societies, as in Western countries [1], it appears that women have not been more concerned than men with the health risks due to smoking, and health-related motivations have not been responsible for women's lower rates of smoking.

Thus far, this analysis of the causes of gender differences in tobacco use has identified several important links between traditional sex roles and men's higher rates of tobacco use. Men's greater status, power and access to scarce material resources have contributed to men's greater tobacco use. General restrictions on women's behavior have been reflected in social disapproval of women's tobacco use in many societies, and this social disapproval has been a major reason why women have used tobacco less than men. Thus, widespread features of traditional sex roles have contributed to the widespread pattern of greater tobacco use by men.

Another possible explanation for the widespread pattern of greater tobacco use by men could be that this pattern is the result of the pervasive influence of Western culture. For example, in several contemporary Pacific Islands it appears that a major reason why fewer women than men smoke is that the Christian church in the area has disapproved of women's smoking [44].

However, it is unclear how widespread or consistent an influence Westernization has had on gender differences in tobacco use in non-Western countries. For many native American groups, it appears that gender differences in tobacco use arose long before Western contact and, if anything, Western contact may have resulted in decreased gender differences in tobacco use, since Western contact may have fostered nonritual tobacco use by both sexes [4, 5]. In contemporary Latin America, greater formal education probably indicates more influence by Western culture. In contemporary Latin American cities more educated women, particularly university educated women, have been more likely to smoke and, as a result, gender differences in smoking have been smaller among more educated adults (calculated from data in Ref. [34]). This suggests that contact with contemporary Western culture may reduce gender differences in smoking. Thus it appears that contact with Western cultures has increased or decreased gender differences in tobacco use, depending on the specific circumstances, and this has been one cause of variation in gender differences in tobacco use.

Variation in gender differences in tobacco use may also be due to certain features of sex roles. For example, restrictions on women's behavior are generally greater for younger women of child-bearing age, and this may explain whey gender differences in tobacco use are greater for young adults in many cultures. Also, specific types of tobacco use may be more compatible with women's roles than men's roles and consequently these types of tobacco use may be more common among women. For example, in one region of India, more women than men smoked the hooka, apparently because the hooka is not very portable and hence is more easily used by the women who work primarily in the home [27]. In this region of India women and men were equally likely to be smokers, because women's higher rates of smoking the hooka were balanced by men's higher rates of smoking bidis (a type of native cigarette). Another aspect of sex roles that may influence gender differences in certain types of tobacco use is the greater emphasis on women's appearance in many cultures. This may explain why, in two regions of India, women were almost the exclusive users of particular types of smokeless tobacco believed to be useful for cleaning teeth [27]. In these regions women were as likely as men to use smokeless tobacco.

A final question concerns the reasons why, in many non-Western societies, women have had higher smoking cessation ratios than men. This question is of particular interest since in most Western countries in recent decades men have had as high or higher cessation ratios than women [1]. Self-reported reasons for quitting smoking are available for a sample from one region where women have higher cessation ratios than men (the Tonga Islands in the Pacific) [29]. The predominant reasons for quitting were different in the Tonga Islands than the reasons for quitting reported in regions where men have as high or higher cessation ratios than women (for example, Latin American cities and the United States) [1] (Table 1). The specific reasons that were important in Tonga may explain why smoking cessation ratios where higher for women. Forty-three percent of the Tongan ex-smokers stated that they had given up smoking for religious reasons. Since women often are more involved in religion than men, the predominance of religious reasons for giving up smoking may

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be one important cause of women's higher cessation ratios. In addition, 17% of female ex-smokers gave pregnancy as their reason for having quit smoking, and this was another important cause of women's higher cessation ratios.

In conclusion, sex roles have had a variety of important effects on gender differences in tobacco use. It appears that the widespread pattern of greater tobacco use by men may reflect certain general features of sex roles, including greater restrictions on women's behavior in many situations and a tendency for men to have greater access to scarce material resources. As modernization proceeds these features of sex roles are likely to change and women's rates of smoking are likely to increase in many non-Western societies. Given the major health-damaging effects of smoking, there is an urgent need to develop strategies to prevent increases in women's smoking, as well as strategies to reduce smoking in groups of men and women among whom smoking is already a common habit.

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